

NEW DISTRIBUTION RECORDS FOR *ANTECHINUS GODMANI* (THOMAS), A RESTRICTED RAINFOREST ENDEMIC

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Antechinus godmani, a restricted rainforest endemic of the wet tropics of Queensland, is recorded from locations up to 55km south of the previously known range. The 36 specimens collected in the Kirrama and Cardwell Ranges are no larger in size than those from other localities. *Antechinus godmani*, distribution, biology.

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The Atherton *Antechinus* (*A. godmani*) was used to define the focal point for the Atherton Subregion, as determined by non-volant mammals, in the wet tropics region of Queensland (Winter et al., 1984). Its distribution had a north-south dimension of c. 60km (Van Dyck, 1982; Laurance, 1990). Its documented northern and southern limits had no obvious habitat or topographical restrictions and Winter et al. (1984), suggested the known range was probably an artefact of inadequate searching techniques. *A. godmani* is an upland species with an altitudinal minimum of 600m (Laurance, 1990); its distribution should be restricted by major low altitude features such as the Herbert River.

This paper reports a southern range extension and suggests probable geomorphic limits to the range of the Atherton *Antechinus*.

METHODS

During fauna surveys of the southern Wet Tropics Biogeographic Region, several sites were searched for terrestrial vertebrates. The work was done to fill in known gaps between collection sites. Surveys were carried out in June and July, 1989, and January, 1990.

Elliot type A traps were baited with PAL dog food (beef) mixed with bran to absorb excess moisture or rolled oats and peanut paste, the latter to specifically target *Melomys cervinipes*. Break-back rat-traps were baited with salami. Traps were placed 7-10m apart along old logging roads, partly grown-over with vegetation, beside recently used logging roads and along paths cut through the rainforest understorey. Traps were set beside logs, trees or in the open. Specimens are deposited in the Queensland

Museum and the Queensland National Parks and Wildlife Service, Townsville. Measurements follow Van Dyck (1982).

TRAPPING RESULTS AND NEW RECORDS

Thirty-six *A. godmani* were captured at ten sites in the Cardwell and Kirrama Ranges at altitudes of 760-1000m (Table 1). Locations have a geology of undifferentiated Permo-Carboniferous granite or rhyolites of the Glen Gordon Volcanics supporting vegetation types of simple notophyll and complex mesophyll vine forests on gentle (<5°) slopes (Table 1). The mesophyll vine forests were mainly on slopes of <1°. All areas except two had been logged, the most recent being 1986/87 when logging ceased. Rainfall would be similar to Koombooloomba c.50km to the north, which, at 720m, has median annual rainfall of 2760mm. Other small ground mammals captured in adjacent traps were *Antechinus stuartii*, *Rattus fuscipes/leucopus* and in the same trapline, *Melomys cervinipes*.

The 31 trap locations where *A. godmani* was captured were in the following positions: 11 base of tree; 10 near logs; 7 in the open; 1 near a stump; 1 in thick fern area; 1 near a tree and log. Released *A. godmani* ran into holes at the bases of trees, hollows in trees, logs or log piles. Large epiphytes were not a feature of the forest.

Other sites, trapped without success, were areas of lower altitude but of the same geology and vegetation; of a similar vegetation, geology, and altitude, but with rain at the time of trapping; or areas which had the same vegetation and geology but had a windswept easterly aspect. Additional trapping sites within the northern

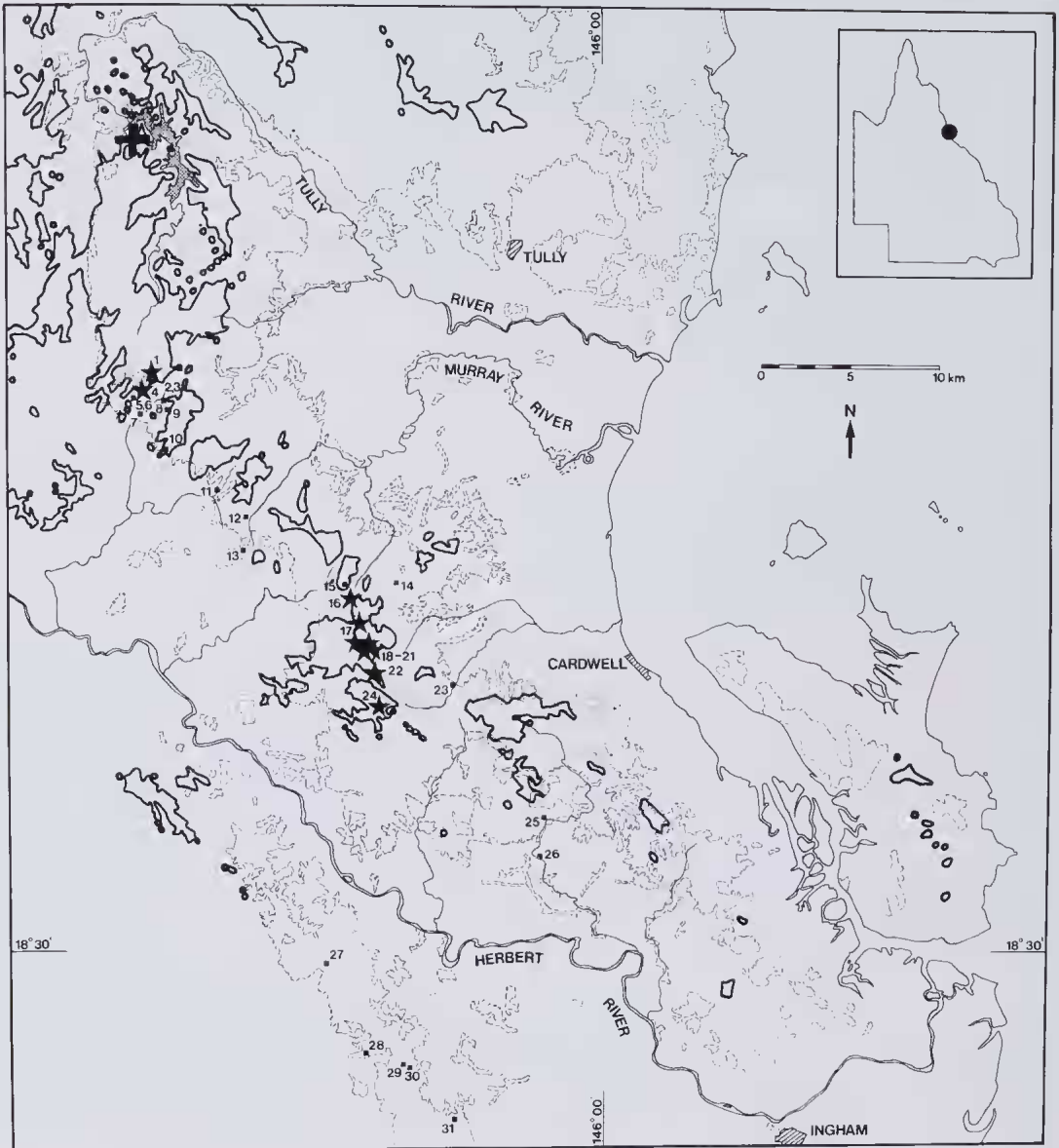


FIG 1. *Antechinus godmani* collection sites (stars) and other sites (squares) where trapping was carried out on the Kirrama and Cardwell Range and the Seaview Range. The 800m contour (solid lines) and rainforest (dashed line) are shown. The most southern previously recorded location near Koombooloomba Dam is shown as a +. Numbers refer to sites in Table 1.

granite areas of Bryce-Henry and Macks Logging Areas where *A. godmani* was collected in July were trapped without success (Table 1). Locations on the Seaview Range in the Mt Fox/Wallaman Falls area, south of the Herbert Valley were trapped in late February, 1990.

This survey extends the range of *A. godmani*

c.55km from the previous southern limit which was Koombooloomba Dam (Van Dyck, 1982; Laurance, 1990). Preferred habitat appears to be rainforests at high altitudes on the Atherton Tableland and the Kirrama and Cardwell Range in the Atherton Uplands block of Winter et al. (1984). A skull now in the Queensland Museum

Site	Latitude ±5"	Longitude ±5"	Altitude (m)	Geology ¹	Vegetation ²	A.g.	A.s.	A.f.	R.spp	Umys	Mel	Year Logged
1	18°01'50"	145°36'50"	980-1000	UG	8/9	x	x		x		x	Unlogged
2	18°02'12"	145°36'43"	880-900	"	8		x		x		x	1987
3	18°02'27"	145°36'47"	880-900	"	8							1986/87
4	18°02'55"	145°36'20"	760-780	"	8	x	x		x		x	1986/87
8	11°03'07"	145°36'18"	760-780	"	8		x		x			1986/87
6	18°03'58"	145°36'00"	760-780	"	8		x		x		x	1986/87
7	18°03'58"	145°36'44"	660-680	"	8		x		x		x	1965/69
8	18°04'37"	145°37'37"	720-740	"	8				x		x	1965/69
9	18°04'57"	145°37'24"	740-760	"	8		x		x		x	1965/69
10	18°05'42"	145°37'52"	780-800	"	8							1960/64
11	18°06'18"	145°38'27"	640-660	"	2a				x		x	1960/64
12	18°09'14"	145°41'22"	620-640	"	2a				x	x	x	1970/74
13	18°10'25"	145°41'58"	640-660	"	x				x	x		1980/84
17	18°12'12"	145°49'26"	580-600	"	2a		x		x			unlogged
15	18°12'20"	145°46'50"	820-880	"	9				x			1980/84
16	18°13'05"	145°47'25"	800-820	"	2a	1			x			1976
17	18°14'10"	145°47'45"	880-900	GG	8	x	x		1		x	1960/62
18	18°15'17"	145°47'58"	840-860	"	8	x	x		x		x	1958/62
19	18°15'18"	145°47'55"	880-890	"	8	x			x		x	1958/62
20	18°15'13"	145°48'05"	880-900	"	8	x	x		x		x	1958/62
21	18°15'20"	145°48'20"	880-900	"	8	1	x		x			1958/62
22	18°16'50"	145°48'35"	800-820	"	8	x			x			1987
23	18°16'58"	145°52'35"	80-120	UG	1a			x	x			unlogged
24	18°17'55"	145°48'50"	800-820	"	2a	x	x		1			unlogged
25	18°23'42"	145°56'56"	80-100	"	2a				x		x	unlogged
26	18°25'15"	145°56'37"	40-60	AL	1a				x	x	x	pre 1954
27	18°31'25"	145°45'50"	560-580	"	8				x			1970/74
28	18°35'03"	145°47'13"	540-560	"	2a			x	x			unlogged
29	18°36'15"	145°49'20"	580-600	GG	8				x		x	1970/74
30	18°36'25"	145°49'45"	620-640	"	8				x			1970/74
31	18°39'30"	145°52'17"	600-620	"	8				x			1965/69

¹. de Keyser et al. (1965), Richards (1980).

². Tracey and Webb (1975), Tracey (1982). Numbers are those used by Tracey and Webb (1975).

UG = Undifferentiated granites. GG = Glen Gordon Volcanics. AL = Alluvium.

Ag = *Antechinus godmani*. As = *Antechinus stuartii*. Af = *Antechinus flavipes*. R.spp = *Rattus* spp. Umys = *Uromys caudimaculatus*. Mel = *Melomys cervinipes*.

TABLE 1. Location, altitude, geology, vegetation and year logged for small rainforest mammals collected on the Kirrama and Cardwell Range in 1989 and the Seaview Range in 1990. All sites are within State Forests except for 24, 25, and 28 which are in National Parks.

(JM6687) is an *A. godmani* collected from State Forest 185 near Tinaroo Dam in September, 1969. One specimen has been collected from Mt Bellenden Ker (J.W. Winter, pers. comm.). In light of these records, it seems reasonable to expect that, *A. godmani* would be on the Lamb Range on the northern end of the uplands. The species is more widely distributed than original-

ly thought (Van Dyck, 1982; Laurance, 1990). *A. godmani* should be rated 'rare' according to the criteria in Thomas and McDonald (1989). It should not be rated endangered or vulnerable as there is no known threat to its habitat. The species is confined to pockets of upland, rainforest habitat and appears not to have a con-

	Sex	Mean	SD	Range	N
HB	♀	122.33	5.3	112-130	12
	♂	136.88	7.84	120-150	17
TL	♀	97.83	5.49	88-106	12
	♂	115.94	8.03	100-127	17
Ear	♀	19.5	0.82	18-21	12
	♂	20.82	1.74	19-25	17
Pes (s.u.)	♀	19.92	1.36	18-22	12
	♂	21.76	1.35	19-24	17
Weight	♀	57.9		53-73	8
	♂	90.0		81-101	5

TABLE 2. Measurements (in mm) of head-body (HB), tail (TL), ear, pes and weight (gm) of *A. godmani* from the Kirrama/Cardwell Range.

tinuous distribution throughout the Atherton Upland block.

A. godmani has been collected at 600m on the Atherton Tablelands (Laurance, 1990) and 1500m on Mt Bellenden Ker (J.W. Winter, pers. comm.). The species is found at 760-1000m on the Kirrama Range (Table 1). Geology of the areas in the collection localities of *A. godmani* range through Permo-Carboniferous rhyolites and granites and Pleistocene basalts. The species does not appear to favour any geological type.

The animal has been trapped in simple and complex notophyll vine forest, mesophyll vine forest and simple microphyll vine-fern forest (Table 1; Van Dyck, 1982; J.W. Winter, pers. comm.). The species occurs in all the dominant rainforest types in the Atherton Upland block as defined by Tracey and Webb (1975).

A. godmani does not appear to be eliminated by selection logging. Locations in which the animals were found on the Kirrama Range were logged 2-30 years prior to the trapping programme (Table 1). The species has been found in Yamanie and Bellenden Ker National Parks. All other areas have been in State Forest. All locations are within the Wet Tropics World Heritage Area.

MEASUREMENTS (Table 2)

Eight females with developing or well developed pouches (HB 117-127mm) had weights from 53-73gm, mean 57.9gm. A female with six pouch young weighed 56gm.

REPRODUCTIVE CONDITION

Of four females caught in June 1989 only one

showed pouch development. In July, all eight females caught, had developing (four) or well-developed pouches with one caught on 14 July having six young (crown rump length 6.1mm). All males, except for one, were caught in June.

An internal examination of three females with well-developed pouches showed embryos in the uterus. Females had unequal embryos developing in each uterine horn and totals greater than the number of teats (Table 3).

ACKNOWLEDGEMENTS

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Specimen No	Uterine horn		Pouch condition
	L	R	
N36711	3	7	well-developed
N36714	5	2	well-developed
N36661	5	2	well-developed

TABLE 3. Embryo number in each uterine horn for three female *A. godmani* in July 1989.

Van Dyck assisted in identification with initial specimens and discussed his knowledge on field collection of *A. godmani*. Les Hawkes and staff of the Queensland Forestry Service and officers of the Queensland National Parks and Wildlife Service at Cardwell assisted in the field. Dr J. Miller gave advice on the embryology and Russell Cumming drew the map. This assistance is gratefully acknowledged.

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